Appl. No. 10/584,007
Response to Office Action of April 1, 2010

PATENT
Docket No. US040001US2
Customer No. 24737

Amendment to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently Amended) A method for extracting and processing video content to be emulated by an ambient light source ~~(88)~~, using output thresholding, comprising:

(1) extracting [1] ~~Extracting~~ color information, including an intensity, from a video signal (**AVS**) that encodes at least some of said video content; and

(4) thresholding [4] ~~Thresholding~~ said color information ~~such that~~ to control an on/off change of state of said ambient light source ~~controlled by said color information can be~~ initiated after said intensity passes a threshold (**T1**, **T2**), wherein the control of the on/off change of state of said ambient light source is configured to provide **(a)** a depiction of dark colors by switching said ambient light source off in response to said intensity falling below the threshold, **(b)** a reduced on/off flicker for said intensity fluctuating at or near the threshold, and **(c)** ambient lighting produced by said ambient light source derived from said video content by switching said ambient light source on in response to said intensity rising above the threshold to emulate the video content by providing a perceptual extension of a phenomenon of the same.

2. (Currently Amended) ~~The method of claim 1, additionally comprising the following steps after step [1]~~ A method for extracting and processing video content to be emulated by an ambient light source, using output thresholding, comprising:

(1) extracting color information, including an intensity, from a video signal (AVS) that encodes at least some of said video content;

(2) transforming [2] ~~Transforming~~ said color information to an unrendered color space (**XYZ**);

(3) transforming [3] ~~Transforming~~ said color information from said unrendered color space to a second rendered color space (**R'G'B'**) so formed as to allow driving said

ambient light source; and

(4) thresholding said color information such that an on/off change of state of said ambient light source controlled by said color information can be initiated after said intensity passes a threshold (**T1**, **T2**).

3. (Currently Amended) The method of claim **1**, wherein ~~step [1]~~ step (1) additionally comprises extracting an average color (**R~~AVG~~**) from said color information.

4. (Currently Amended) The method of claim **1**, wherein ~~step [1]~~ step (1) additionally comprises at least one extraction of said color information from an extraction region (**R1**).

5. (Currently Amended) The method of claim **4**, wherein ~~step [1]~~ step (1) additionally comprises using said extraction of said color information to broadcast ambient light (**L4**) from said ambient light source adjacent said extraction region.

6. (Original) The method of claim **1**, wherein said threshold comprises a first threshold (**T1**) and a second threshold (**T2**), wherein said on/off change of state can be initiated only after intensity passes both first and second thresholds.

7. (Original) The method of claim **2**, additionally comprising performing a gamma correction to said second rendered color space.

8. (Currently Amended) The method of claim **2**, wherein ~~steps [2] and [3]~~ steps (2) and (3) additionally comprise matrix transformations of primaries (**RGB, R'G'B'**) of said rendered color space and second rendered color space to said unrendered color space using first and second tristimulus primary matrices (**M₁, M₂**); and deriving a transformation of said color information into said second rendered color space (**R'G'B'**)

by matrix multiplication of said primaries of said rendered color space, said first
tristimulus matrix, and the inverse of said second tristimulus matrix $(M_2)^{-1}$.

9. (Original) The method of claim **8**, wherein said unrendered color space is one of CIE
XYZ; ISO RGB defined in ISO Standard 17321; Photo YCC; and CIE LAB.

10. (Currently Amended) The method of claim **8**, wherein ~~step [1]~~ step (1) additionally
comprises extracting an average color (R_{AVG}) from said color information.

11. (Currently Amended) The method of claim **10**, wherein ~~step [1]~~ step (1) additionally
comprises at least one extraction of said color information from an extraction region
(**R1**).

12. (Currently Amended) The method of claim **11**, wherein ~~step [1]~~ step (1) additionally
comprises using said extraction of said color information to broadcast ambient light (**L4**)
from said ambient light source adjacent said extraction region.

13. (Currently Amended) The method of claim **2**, wherein ~~steps [1], [2], and [3]~~ steps (1),
(2), and (3) are substantially synchronous with said video signal (**AVS**).

14. (Original) The method of claim **2**, additionally comprising broadcasting ambient light
(**L1**) from said ambient light source using said color information in said second rendered
color space.

15. (Currently Amended) A method for extracting and processing border region video
content from a rendered color space (**RGB**) to be emulated by an ambient light source
~~(88)~~ using output thresholding, comprising:
(1) extracting ~~[1] Extracting~~ color information, including an intensity, from a video signal

(**AVS**) that encodes at least some of said video content in said rendered color space;

(2) extracting [2] Extracting an average color (**R$_{AVG}$**) from said color information from an extraction region (**R1**) in each of said individual frames;

(3) transforming [3] Transforming said average color to an unrendered color space (**XYZ**);

(4) transforming [4] Transforming said average color from said unrendered color space to a second rendered color space (**R'G'B'**) so formed as to allow driving said ambient light source;

(5) thresholding [5] Thresholding said color information such that an on/off change of state of said ambient light source controlled by said color information can be initiated after said intensity passes a threshold (**T1**, **T2**); and

(6) [6] using said average color to broadcast ambient light (**L4**) from said ambient light source adjacent said extraction region.

16. (Currently Amended) The method of claim **15**, wherein wherein said threshold comprises a first threshold (**T1**) and a second threshold (**T2**), and wherein said on/off change of state can be initiated only after intensity passes both first and second thresholds. [[.]]

17. (Currently Amended) The method of claim **15**, wherein steps [3] and [4] steps (3) and (4) additionally comprise matrix transformations of primaries (**RGB, R'G'B'**) of said rendered color space and second rendered color space to said unrendered color space using first and second tristimulus primary matrices (**M$_1$, M$_2$**); and deriving a transformation of said color information into said second rendered color space (**R'G'B'**) by matrix multiplication of said primaries of said rendered color space, said first tristimulus matrix, and the inverse of said second tristimulus matrix (**M$_2$**)$^{-1}$.

18. (Currently Amended) A method for output thresholding an ambient light source ~~(88)~~ for emulation of video content, comprising:

(1) extracting ~~[1] Extracting~~ color information, including an intensity, from a video signal (**AVS**) that encodes at least some of said video content; and

(6) thresholding ~~[6] Thresholding~~ said color information ~~such that~~ to control an on/off change of state of said ambient light source ~~controlled by said color information can be~~ initiated after said intensity passes a threshold (**T1**, **T2**), wherein the control of the on/off change of state of said ambient light source is configured to provide (**a**) a depiction of dark colors by switching said ambient light source off in response to said intensity falling below the threshold, (**b**) a reduced on/off flicker for said intensity fluctuating at or near the threshold, and (**c**) ambient lighting produced by said ambient light source derived from said video content by switching said ambient light source on in response to said intensity rising above the threshold to emulate the video content by providing a perceptual extension of a phenomenon of the same.

19. (Currently Amended) ~~The method of claim 18~~ A method for output thresholding an ambient light source for emulation of video content, comprising:

(1) extracting color information, including an intensity, from a video signal (**AVS**) that encodes at least some of said video content; and

(6) thresholding said color information such that an on/off change of state of said ambient light source controlled by said color information can be initiated after said intensity passes a threshold (**T1**, **T2**), additionally using a colorimetric estimate and employing an interframe interpolation process, said method additionally comprising:

(2) decoding ~~[2] Decoding~~ said video signal into a set of frames (**F**), extracting said color information from only selected extraction frames (**F₁**, **F_N**), and performing interframe interpolation between said extraction frames to yield interpolated frames (**G₂**, **G₃** +), said color information then newly derived from said extraction frames and said interpolated frames;

(3) extracting [3] ~~Extracting~~ a colorimetric estimate from said color information from an extraction region (**R1**) in each of said individual frames;

(4) transforming [4] ~~Transforming~~ said colorimetric estimate to an unrendered color space (**XYZ**);

(5) transforming [5] ~~Transforming~~ said colorimetric estimate from said unrendered color space to a second rendered color space (**R'G'B'**) so formed as to allow driving said ambient light source; and

(7) [7] using said colorimetric estimate after ~~step [6]~~ step (6) to broadcast ambient light (**L4**) from said ambient light source adjacent said extraction region.

20. (Original) The method of claim **18**, wherein said threshold comprises a first threshold (**T1**) and a second threshold (**T2**), wherein said on/off change of state can be initiated only after intensity passes both first and second thresholds.